

**METHOD AND APPARATUS FOR DISPLAYING  
ADVERTISING INDICIA ON A WIRELESS DEVICE**

**DESCRIPTION**

**Technical Field**

The present invention generally relates to wireless devices for paging its user. More specifically, the present invention relates to a method and apparatus for displaying advertisements on a wireless device, such as a pager.

**Background of the Invention**

Wireless devices, such as pagers, have become common. These wireless devices have allowed individuals to communicate more efficiently in business and personal settings. Typical pager wireless devices include a display for displaying a source of a page, such as a phone number to return the call. Typical pagers also include a receiver which "listens" for its particular signal to be broadcast from a base station. Once the pager's individual signal is broadcast, the receiver in the pager will recognize its signal has been sent and will indicate an alarm to the user of the pager. The pager will then display the source of the page on the display.

One particular type of pager is disclosed in U.S. Patent No. 5,999,088 issued to Sibbitt, entitled "Information Display Pager." The Sibbitt pager provides active entertainment for people waiting for service. Such people are provided with an electronic pager assembly for notifying when the service is available. The Sibbitt pager includes an electronically controllable pager assembly having a controllable screen display and programmed with information likely to be desirable to a person holding the pager. The Sibbitt patent further discloses examples of the type of information displayed on the active pager screen display; such information can include advertisements. The Sibbitt patent further discloses an internal memory of the pager can be programmed to display various data such as restaurant specials or local ads. However, the user of the pager must choose to select to view the information, such as the ads. The information is not automatically placed on the screen. Moreover, the user can choose to completely ignore

the information within the pager and to wait until the pager "vibrates" as the notification that the user is ready to be seated in the restaurant.

Another particular type of pager is disclosed in U.S. Patent No. 6,008,739, issued to Hymel, entitled Increasing "The Size Of Memory Available For Storing Messages In Response To The User Reading Advertisements In A Selective Call Receiver." The Hymel patent is directed to a method involving a "Selective Call Receiver" (SCR). The Hymel patent discloses a method of encouraging a user of an SCR to read advertisements stored in the SCR. The disclosed SCR or pager has circuitry including an antenna, an RF demodulator and a digital decoder for receiving and decoding incoming messages, including advertisements. The messages including the advertisements are not preprogrammed or prestored in the SCR or pager. The incoming messages including the advertisements are then stored in memory, for viewing when the user wishes to do so. The SCR has a message memory and can also have a reserve memory. Timers are provided in the SCR to indicate features relating to allocation of memory and notifying the user about the allocation (or lack thereof) of memory. The SCR can detect when the user views an advertisement. In addition, when more advertisements are viewed in a shorter period of time, it is more likely that more memory will be allocated for messages (pages), and it will be less likely that messages (pages) will be lost due to the lack of increased memory allocation from the lack of viewing advertisements. Thus, there is only an encouragement to read advertising, with messages (pages) potentially being lost, and with the advertisements being sent from a broadcast of the message.

Another further particular type of pager is disclosed in U.S. Patent No. 6,031,467, issued to Hymel et al., entitled "Method In a Selective Call Radio For Ensuring Reception Of Advertisement Messages." The Hymel et al. patent discloses a "Selective Call Radios" (SCR) that receives personal messages and corresponding advertising messages. The SCR comprises an antenna for intercepting RF signals from a radio communication system. The antenna is coupled to a receiver employing conventional demodulation techniques for receiving the communication signals transmitted by the radio communication system. Radio signals received by the receiver produce

demodulated information, which is coupled to a processor for processing received messages. A conventional power switch, coupled to the processor, is used to control the supply of power to the receiver from a conventional battery source, thereby providing a battery saving function. The Hymel et al. patent further discloses that to perform the necessary functions of the SCR, the processor includes a microprocessor, first and second timers, and a memory that includes, for example, a random access memory (RAM), a read-only memory (ROM), and an electrically erasable programmable read-only memory (EEPROM). The processor is programmed by way of the ROM to process incoming messages transmitted by the radio communication system. The processor decodes an address in the demodulated data of the received message, compares the decoded address with one or more addresses assigned and stored in the EEPROM of the SCR, and when a match is detected, proceeds to process the remaining portion of the message if predetermined expectation criteria is satisfied. Assuming the processor decides to process the message, it stores the message in the RAM, and a call alerting signal is generated to alert a user that a message has been received. The call alerting signal is directed to a conventional audible or tactile alerting device for generating an audible or tactile call alerting signal. The message can be accessed by the user through user controls, which provide functions such as lock, unlock, delete, read, etc. More specifically, by the use of appropriate functions provided by the user controls, the message is recovered from the RAM and conveyed to the user by way of a presentation circuit, which includes a display (e.g., a conventional liquid crystal display—LCD) for alphanumeric messaging and an audio circuit for audio messages. The SCR receives a personal message from a base station of the radio communication system. A personal message comprises caller initiated messages and/or an information services message such as, for example, news, weather and/or sports. For an end user of the SCR receiving free subscription based on sponsorship from an advertiser, the personal message is associated with a corresponding advertisement message. The personal message and its corresponding advertisement message share a common identifier. The common identifier can be, for instance, a shared address. The shared address is stored in the EEPROM, which the processor utilizes to identify that an incoming personal message and/or advertisement message is intended for

the SCR. Once the SCR has received the personal message and the end user of the SCR has requested presentation of the personal message, the processor determines whether a corresponding advertisement message is stored in the memory received by transmission with the message. If the corresponding advertisement message is stored in memory, then the processor presents the corresponding advertisement message followed by the personal message. In the event the processor fails to find the corresponding advertisement message, the processor causes the presentation circuit to present the personal message to the user of the SCR by way of either the display. Then the processor warns the user that the SCR must receive the corresponding advertisement message within a first predetermined time. The warning instructs the user how to place the SCR in an optimal mode for receiving the corresponding advertisement message. For example, the warning message may instruct the user not to turn off the SCR during the nighttime or for at least a twenty-four hour period. Once the user has been warned, the processor activates the first timer invoking an alert signal within the first predetermined time, unless deactivated in the manner discussed below. Additionally, the predetermined time is preprogrammed into the SCR by the service provider of the radio communication system prior to delivering the SCR to an end user. For each personal message received, the processor checks for the reception and storage of the corresponding advertisement message. In a best case scenario, the corresponding advertisement message is received prior to the expiration of the first timer. When this happens, the processor deactivates the first timer. If the first timer expires prior to the reception of the corresponding advertisement message, thereby generating an alert signal to the processor, then the processor warns the user that the SCR has been disabled from receiving personal messages. The warning instructs the user how to go about re-enabling the SCR to receive personal messages—such as, for example, maintaining the SCR powered on for a twenty-four hour period. The processor then disables reception of personal messages until the corresponding advertisement message is received. The processor maintains this mode of operation until the corresponding advertisement message is received. Upon receiving the corresponding advertisement message, the processor determines if there is a history of misuse, i.e., intentional avoidance of advertisement messages, by the end user of the

SCR. If there is a history of intentional misuse, then the processor reduces the first predetermined time by a second predetermined time, which has a duration less than the first predetermined time. The purpose of this reduction is to effectively reduce the grace period for receiving the corresponding advertisement message. By reducing the grace period, a user who frequently misuses the SCR will be given less time for receiving personal messages free of charge. In extreme cases, the processor immediately disables the SCR. Thus, the advertisement messages can be lost when the pager is not on. In addition, a complicated structure is needed to ensure and encourage viewing of advertisement messages.

The present invention is provided to solve these and other problems.

#### **Summary of the Invention**

The present invention is a wireless device, such as a pager, that has an identity, such as a frequency. The wireless device is provided for notifying a user of a source of a page, such as a telephone number, directed specifically to the identity of the wireless device. The wireless device includes a housing and a display attached to the housing. The wireless device further includes a driver connected to the display for causing indicia to appear on the display. The wireless device further includes a controller, such as a microprocessor connected to the driver for sending to the display a signal comprising indicia to appear on the display. The wireless device also has a memory preprogrammed with advertising indicia and a receiver connected to the controller for receiving a page signal directed specifically at the identity of the wireless device and for communicating the page signal to the controller. When the controller receives the page signal received by the receiver, the controller will then send to the driver a signal comprising the advertising indicia preprogrammed in the memory for causing the display to display the advertising indicia. The controller will then send to the driver a signal comprising an identification of the source of the page for display on the display.

The display can be a liquid crystal display (LCD) display and the memory can be an electrically eraseable programmable read only memory (EEPROM). The advertising indicia can be a logo of a company, a company name, or other advertising indicia.

When the controller receives the page signal received by the receiver the controller can then send to the LCD driver, immediately, a signal comprising the advertising indicia in the memory for causing the LCD to display the advertising indicia. The controller can then send to the LCD driver, within five seconds or less from the sending of the signal comprising the advertising indicia, a signal comprising an identification of the source of the page.

In an additional embodiment of the present invention, the present invention is a memory device for a wireless device with its structure and functions generally as described. The memory device has a storage location preprogrammed with advertising indicia. When the controller receives the page signal received by the receiver the controller will then send to the driver a signal comprising the advertising indicia preprogrammed in the memory for causing the display to display the advertising indicia, and the controller will then send to the driver a signal comprising an identification of the source of the page for display on the display.

In a further embodiment of the present invention, the present invention is a method of providing advertising indicia to a user of a wireless device on the display of the wireless device. The wireless device notifies the user of the source of the page directed specifically to an identity of the wireless device. The method comprising the steps of receiving an advertising request for placement of advertising indicia within the wireless device; storing in a memory located within the wireless device the advertising indicia, before the user obtains permanent possession of the wireless device; providing permanent possession of the wireless device to the user; and, providing paging service to the user. The user receives the page from the source. The advertising indicia stored in the memory of the wireless device then appears on the display of the wireless device. The source of the page then appears on the display of the wireless device.

Other features and advantages of the present invention will be apparent from the Figures, Detailed Description, and Claims below.

#### **Brief Description of the Drawings**

Figure 1 is one embodiment of the wireless device of the present invention.

Figure 2 is a block diagram of one embodiment of the process of implementing advertising indicia into the wireless device of the present invention.

Figure 3 is a memory allocation of one embodiment wireless device of the present invention.

Figure 4 is a flow diagram of one embodiment of what appears on the display of the wireless device of the present invention.

### Detailed Description

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

With reference to Figure 1, one form of a wireless device, a pager 2, is shown. The pager 2 has an identity in the form of a frequency or small frequency range with which signals are sent to the pager 2, and which the pager 2 will recognize and receive. The pager 2 is used for notifying a user of a source of a page directed specifically to the identity of the pager 2. The source of the page can be a person or a number to reach the person sending the page. The pager 2 has a housing 4 and a liquid crystal display (LCD) 6 attached to the housing 4. With further reference to Figure 2, a liquid crystal display driver 8 is electrically connected to the LCD for causing indicia to appear on the LCD. A controller or microprocessor 10 is connected to the LCD driver 8 for sending to the LCD 6 a signal that has indicia therein. In one form of the present invention, the controller 10 is an MCU Hitachi 3827 microprocessor. The controller 10 and the LCD driver 8 work together, as one of ordinary skill in the art would understand, to cause the indicia to appear on the LCD 6. The pager 2 also has an electrically erasable programmable read only memory (EEPROM) 12. The EEPROM 12 is preprogrammed with advertising indicia, as will be further described below. The preprogrammed advertising indicia therein can be changed, when a EEPROM or other such changeable memory is used. The pager 2 also has a power source for powering the controller 10, the

LCD 6, and other components needing a power source. A receiver is electrically connected to the controller, as one of ordinary skill in the art would understand, for receiving a page signal directed specifically at the identity of the pager 2. The receiver will communicate the page signal to the controller 10.

5 When the controller 10 receives the page signal sent to the controller 10 by the receiver, after the receiver receives the signal, the controller 10 will then send to the LCD driver 8 a signal comprising the advertising indicia in the EEPROM 12 for causing the LCD 6 to display the advertising indicia. The controller will then send to the LCD driver a signal comprising an identification of the source of the page, such as a number or person's name, or both. The advertising indicia can be the name of a company, a logo, or some other form of advertising indicia.

10 In one form of the present invention, when the controller 10 receives the page signal received by the receiver, the controller 10 immediately send, to the LCD driver 8 a signal comprising the advertising indicia in the memory 12. This will cause the LCD 6 to display the advertising indicia. The controller 10 next sends to the LCD driver 8, within five seconds or less from the sending of the signal comprising the advertising indicia, a signal comprising an identification of the source of the page. In this way the user of the pager 2 does not have to wait an unnecessary amount of time, with the understanding that the user knows it has received the pager and the paging service for little or no charge.

15 In the embodiment in Figures 1-4, the memory device has several storage locations 14, at least one of which is preprogrammed with advertising indicia. Figure depicts the company name "YAHOO.COM" (see Figure 4) preprogrammed in the storage location 14. When the controller 10 receives the page signal received by the receiver, the controller 10 sends to the driver 8 a signal comprising the advertising indicia preprogrammed in the memory 12 for causing the display 6 to display the advertising indicia. Thereafter, the controller 10 will send to the driver 8 a signal comprising the identification of the source of the page for display on the display 6. As will be described further below, the advertising indicia is preprogrammed, at either the factory or assembly

20

25



facility where the pager 2 is manufactured, or where the pager 2 is distributed, such as a wholesaler or retailer.

In a further embodiment, the present invention includes a method of providing advertising indicia to the user of the wireless device 2. The advertising indicia 16 is provided on the display 6 of the wireless device 2. The sellers of the pager devices in order to make the price more reasonable for the user, if at any price at all, contract directly with a company or person wishing to advertise a product, name, service, or other thing representable through indicia. The seller can, thus, receive a request for placement of advertising indicia within the wireless device. The seller or other entity will then store in the memory 12 of the wireless device 2 the advertising indicia. This is done before the user obtains permanent possession of the wireless device, although it can be done after the user has identified in a store or otherwise, which pager 2 the user is interested in using and receiving on a permanent basis. Once the seller has programmed the advertising indicia 16 within the pager 2, the seller provides the wireless device to the user on a permanent basis. This can be done on a no charge basis. The paging service will then be provided to the user such that when the user receives the page from the source, the advertising indicia 16 stored in the memory 12 of the wireless device 2 will appear on the display 6, as mentioned above, before the page will appear on the display 6 of the wireless device 2.

As mentioned above, the seller of the pager 2 can program the advertising indicia 14 into the pager 2. This can be accomplished by connecting a personal 18 computer to the wireless device 2 through a cable 20. The cable 20 can connect through a serial port in the personal computer 18 at one end of the cable 20 and to a EEPROM programming board, having a EEPROM 12 thereon, at the other end of the cable 20. Software is then run on the personal computer which will allow for communication between the personal computer and the EEPROM 12 that is then placed in the wireless device 2. Alternatively, the other end of the cable 20 can be directly connected to the wireless device 2. The seller then enters the advertising indicia 16 into the software running on the personal computer, and the advertising indicia 16 is then sent to the wireless device 12 from the personal computer 18 for storage in the memory 12, either directly or indirectly through

the use of the EEPROM programming board. The cable 20 and personal computer 18 are then disconnected from the wireless device, either directly or indirectly from the EEPROM programming board.

5 The entity placing the advertising request can pay for some or all of the wireless device or associated paging service, if needed. Several different advertising indicia can be preprogrammed into memory before the user receives permanent possession thereof. In a further embodiment of the present invention, when a first page is received, a first advertising indicia, such as "YAHOO.COM" stored in memory 12 can be displayed on the display 6 of the wireless device 2. When a second page is received, a second advertising indicia, such as "COKE" stored in memory 12 can be displayed on the display 6 of the wireless device 2. When more than one advertising indicia are preprogrammed into memory 12, the advertising indicia can alternate being displayed on the display 6. In an even further embodiment, the controller 10 of the wireless device 2 can be programmed to cause the first advertising indicia to appear on the display a particular percentage of the time of the overall number of pages for a given time period. For example if YAHOO and COKE placed advertising requests, and YAHOO paid more than COKE, then the wireless device 2 could be programmed to have a cycle with four slots, and YAHOO would take up three of the four slots, with COKE taking up the fourth slot. Thus, YAHOO would appear three times in a row, for the first three pages, and COKE would come up on the fourth page. This cycle can be repeated. Other numbers of slots in one cycle could also be used. Other programming methods come to mind by one of ordinary skill in the art, so long as the proper percentage of appearances is achieved.

15 In an even further embodiment of the present invention, the seller can also program the length of time that the advertising indicia 16 will appear on the display 6 before the source is displayed on the display 6. It should be understood that the above described wireless device has an audible and or vibrating alarm for notifying a user when a page is taking place, or has taken place. In either case, the programmable time for the advertising indicia to be displayed in the display 6 can begin after the audible alarm is complete. Alternatively, the time that the advertising indicia is displayed on the display

can begin about the same time as an alarm begins. These programmable features allow for flexibility in meeting the requests and demands of companies and individuals wishing to place advertising within a wireless device.

5 In a further embodiment of the present invention, the user can wait to view the source of the page until a later time after the alarm indicates that the page has been received. The user can then press a button to select to view the source of the page. When the user selects to do this, the advertising indicia will be displayed on the display, as described above. In a further embodiment, the user can choose to keep the source of the page in memory by not deleting it after the first viewing of the advertising indicia and the associated source of the page. The user can choose to view the source of the page again at a later time with or without the advertising indicia appearing before the source of the page is displayed. In relation to all of the above-described embodiments of the present invention, the advertising indicia can include slogans or directed messages such as "DON'T SMOKE" or "SAY NO 2 DRUGS."

10 15 While the specific embodiments have been illustrated and described, numerous modifications come to mind without significantly departing from the spirit of the invention and the scope of protection is only limited by the scope of the accompanying Claims.